

**INEZ Y. FUNG**

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**EDUCATION:**

1971: S.B. (Applied Mathematics), Massachusetts Institute of Technology  
1977: Sc.D. (Meteorology), Massachusetts Institute of Technology  
Thesis: "The organization of spiral rainbands in a hurricane"  
Advisor: Prof. J.G. Charney

**RESEARCH INTERESTS:**

Climate change and biogeochemical cycles. Large scale earth system modeling. Remote sensing of earth systems. Atmosphere-ocean interactions, and atmosphere-biosphere interactions.

**PRESENT PROFESSIONAL EMPLOYMENT:**

1998-: **University of California, Berkeley**  
Professor, Department of Earth and Planetary Science,  
Department of Environmental Science, Policy and Management  
Director, Berkeley Atmospheric Sciences Center, 1998-2005  
Co-Director, Berkeley Institute of the Environment, 2005-  
Faculty Staff Scientist, Earth Sciences Division, Lawrence Berkeley National  
Laboratory

**PAST PROFESSIONAL EMPLOYMENT:**

1993-2001: Adjunct Senior Scientist, Lamont-Doherty Earth Observatory, Columbia  
University  
1993-1998: Professor, School of Earth and Ocean Sciences, University of Victoria,  
Canada  
1986-1998: Physical Scientist, NASA Goddard Space Flight Center, Institute for Space  
Studies, (on leave of absence 1993-1998)  
1989-1993: Adjunct Professor, Division of Applied Mathematics, Department of  
Applied Physics, Columbia University

1986-1993: Adjunct Associate Research Scientist, Lamont-Doherty Geological Observatory of Columbia University  
 1988, Spring: Visiting Associate Professor, Institute of Environmental Studies, University of Washington  
 1979-1986: Associate Research Scientist, Lamont-Doherty Geological Observatory of Columbia University (resident at NASA Goddard Institute for Space Studies)  
 1977-1979: National Academy of Sciences/National Research Council Resident Research Associate (resident at Goddard Space Flight Center)

### **OTHER PROFESSIONAL ACTIVITIES:**

#### **National and International Committees, Panels, Working Groups: Current**

2005- Co-Lead, Diagnostics Group (with J. Randerson) of the Biogeochemistry Working Group, NCAR Community Climate System Model  
 2005- Member, Ecosystems, Land Use and Biodiversity Panel of the NRC Decadal Survey: Earth Science Applications from Space  
 2004-2005: Member, Ad-Hoc Committee for Petascale Collaboratory for the Geosciences

#### **National and International Committees, Panels, Working Groups: Past:**

2003-2005: Member, National Academies Coordinating Committee on Global Change  
 2001-2005 Member, Executive Council, American Meteorological Society  
 2001-2004: Member, American Geophysical Union Fellows Selection Committee  
 2000-2003: Member, NOAA Postdoctoral Fellows Selection Committee  
 1999-2004: Member, Scientific Steering Group, US Carbon Cycle Science Program  
 1998-2004: Co-Chair, Biogeochemistry Working Group, NCAR Community Climate System Model  
 1997-2004: Member, Task Force for International Geosphere Biosphere Programme (IGBP) Global Analysis, Interpretation and Modelling (GAIM)  
 1998-2000: Member, NASA Earth Sciences Advisory Committee  
 1998-2000: Member, National Science Foundation GeoSciences Advisory Committee  
 1998-2000: Working Group Member, US Carbon Cycle Science Program  
 1996-1998: Member, Science Council of British Columbia  
 1990-1998: Member, US National Oceanographic and Atmospheric Administration (NOAA) Panel on Climate and Global Change; Member of Executive Committee  
 1997: Member, Scientific Organizing Committee, 5<sup>th</sup> International CO<sub>2</sub> Conference, Cairns, Australia  
 1996: Member, Canadian National Committee for the Global Climate Observing System  
 1995-1996: Member, NAS/NRC Space Studies Board Committee on Earth Studies  
 1994-2002: Member, Commission on Atmospheric Chemistry and Global Pollution (CACGP) of the International Association of Meteorology and Atmospheric Science (IAMAS)  
 1990-1994: Member, NAS/NRC Polar Research Board  
 1993-1994: Member, Program Advisory Committee, Dahlem Conference on Aerosols and Climate

- 1993: Member, Scientific Organizing Committee, 4th International CO<sub>2</sub> Conference, Carqueiranne, France
- 1990: Member, Scientific Advisory Council, U.S. Climate Systems Modeling Project
- 1989: Member, International Geosphere Biosphere Program (IGBP) Coordinating Panel on Global Analysis Interpretation and Modelling
- 1989: Member, International Geosphere Biosphere Program (IGBP) Coordinating Panel on Effects of Climate Change on Terrestrial Ecosystems
- 1988-1989: American Association for the Advancement of Science, Committee on Climate
- 1986-1989: National Academy of Sciences/National Research Council Climate Research Committee
- 1989: National Research Council Committee on Global Change Working Group on Water-Energy-Vegetation Interaction, 1989
- 1989-1991: Organizing Committee, Workshop on Arctic Systems Science: A Strategy for Action
- 1988: Joint US/China Working Group on Possible Collaboration in the International Geosphere Biosphere Program
- 1986: Working Group on Theoretical Studies and Modeling, Global Tropospheric Chemistry: Plans for the U.S. Research Effort

#### **Other Committees:**

- 2000: Chair, NSF Directorate of Geosciences Committee of Visitors (COV) for UCAR and Lower Atmospheric Facilities Oversight Section
- 2003: Member, External Visiting Committee, Department of Meteorology, University of Maryland
- 2003: Member, External Visiting Committee, Department of Atmospheric Sciences, UCLA

#### **Editorial:**

- 2002-2004: Editorial Board, Global Biogeochemical Cycles
- 1996-1998: Editor, Journal of Climate
- 1994-: Editorial Advisory Panel, Global Change Biology
- 1993-1994: Guest Editor, *Tellus* Special Issue for the 4<sup>th</sup> International CO<sub>2</sub> Conference
- 1990-1997: Editorial Board, International Journal of Remote Sensing
- 1988-1989: Associate Editor, Journal of Climate

#### **AWARDS AND HONORS:**

- 2005: Scientific American 50
- 2004: Roger Revelle Medal, American Geophysical Union
- 2002: Henry W. Kendall Memorial Lecturer in Global Change Science, MIT
- 2001: Elected Member, National Academy of Sciences
- 1997-2002: Richard and Rhoda Goldman Distinguished Professor for the Physical Sciences, UC Berkeley

1996: Fellow, American Geophysical Union  
1994: Fellow, American Meteorological Society  
1992-1997: NASA Goddard Senior Fellow  
1991: NOAA Distinguished Authorship Award  
1990, 1996: NASA Goddard Institute for Space Studies Most Valuable Paper Award  
1989: NASA Exceptional Scientific Achievement Medal  
1987, 1993: NASA Goddard Institute for Space Studies Peer Award  
1977: C.G. Rossby Award for the outstanding thesis of the year, Department of Meteorology, MIT

**PROFESSIONAL MEMBERSHIP:**

American Geophysical Union  
American Meteorology Society  
American Association for the Advancement of Science

**OUTREACH**

Biography “Forecast Earth: the Story of Climate Scientist Inez Fung” is one in the series “Women’s Adventures in Science” targeted at middle-school students.  
<http://www.iWASwondering.org>

**FOR PUBLICATIONS, SEE SEPARATE LIST**

## **EDUCATION AND MENTORSHIP**

### **Courses taught at the University of California, 1998-2006**

#### **Case Studies in Earth Systems -- Earth And Planetary Science (EPS) 150 [2 units]**

**Course Format:** Two hours of lecture per week.

**Prerequisites:** EPS 50, senior standing or consent of instructor.

**Description:** Analysis and discussion of three research problems on the interactions of solid earth, hydrologic, chemical, and atmospheric processes. Emphasis is on the synthesis and application of the student's disciplinary knowledge to a new integrative problem in the earth sciences.

#### **Atmospheric Physics and Dynamics -- Earth And Planetary Science (EPS) 181 [3 units]**

**Course Format:** Three hours of lecture/discussion per week.

**Prerequisites:** Mathematics 53, 54; Physics 7A-7B-7C.

**Description:** This course examines the processes that determine the structure and circulation of the Earth's atmosphere. The approach is deductive rather than descriptive: to figure out the properties and behavior of the Earth's atmosphere based on the laws of physics and fluid dynamics. Topics will include interaction between radiation and atmospheric composition; the role of water in the energy and radiation balance; governing equations for atmospheric motion, mass conservation, and thermodynamic energy balance; geostrophic flow, quasigeostrophic motion, baroclinic instability and dynamics of extratropical cyclones. Text: Holton

#### **Carbon Cycle Dynamics -- Earth And Planetary Science (EPS) 251 [3 units]**

**Course Format:** Three hours of lecture per week.

**Description:** In this course, we will focus on the (unsolved) puzzle of the contemporary carbon cycle. Why is the concentration of atmospheric CO<sub>2</sub> changing at the rate observed? What are the terrestrial and oceanic processes that add and remove carbon from the atmosphere? What are the processes responsible for long-term storage of carbon on land and in the sea? Emphasis will be placed on the observations and modeling needed to evaluate hypotheses about carbon sources and sinks. Past records will be examined for clues about sensitivity of carbon processes to climate variations.

#### **Climate Modeling – Earth and Planetary Science (EPS) 298 [2-3 units]** (to be developed into a new course for Spring 2007):

**Course Format:** Three hours of lecture/discussion per week.

**Prerequisites:** EPS 181

**Description:** This course presents the fundamental concepts of global climate models, including numerical methods, radiative transfer, atmospheric and oceanic dynamics, parameterization of clouds and subgrid scale processes. Emphasis is placed on the philosophies and principles that guide the various approaches to climate modeling and on the advantages and limitations of the different approaches.

#### **Post-doctoral Scholars Sponsored**

2006- Colette Heald (PhD, Harvard)  
2006- Jung-Eun Lee (PhD, UC Berkeley)  
2004-2005: Cara Henning (PhD, Princeton University)  
2002-2005: Wolfgang Buermann (PhD, Boston University)  
2002-2005: Alon Angert (PhD, Hebrew University)  
2001-2003: Sebastien Biraud (PhD, University of Paris, IV)  
2001-2003: Celine Bonfils (PhD, University of Paris IV)  
2000-2002: Christopher Still (PhD, Stanford University)  
1999-2001: Johanne Balle (PhD, University of Paris IV)

1998-2000: James Randerson (PhD, Stanford University)  
 1996-1997: Philippe Maisongrande (PhD., Institut National Polytechniques de Toulouse)  
 1995-1997: Pierre Friedlingstein (PhD., U. of Brussels)  
 1995-1996: Aigou Dai (PhD, Columbia U.)  
 1992-1994: Fritz Zaucker (PhD., U. Heidelberg, Germany)  
 1992-1994: Ina Tegen (PhD., U. Heidelberg, Germany)  
 1991-1993: William Russell (PhD., U. Virginia)  
 1991-1993: Xingjian Jiang (Ph.D., U. Illinois)  
 1990-1991: Jerome Chappellaz (Ph.D., U. Grenoble, France)  
 1987-1988: Ru-Ling Chou (Ph.D., City College of New York)  
 1986-1988: Katharine Prentice (Ph.D., Columbia University)

**Doctoral Students Graduated** (includes only students for whom I was the principal scientific advisor or co-principal scientific advisor)

2005: Jung-Eun Lee: "Water isotopes" (EPS), UC Berkeley  
 2003: Benjamin Lintner: "Interhemispheric transport of passive tracers" (Physics), UC Berkeley  
 1995: Aigou Dai. "Global precipitation variability and its relationship to other climate changes".  
 PhD (Geology and Geophysics), Columbia University.  
 1990: Fenglin Yin. "Numerical modeling of ocean deep water circulation" Ph.D. (Applied  
 Physics), Columbia University.  
 1989: Rosanne D'Arrigo. "Dendrochronologic modelling and reconstruction of climate  
 variability." Ph.D. (Geology) Columbia University  
 1986: Katharine Prentice. "The influence of the terrestrial biosphere on seasonal atmosphere  
 carbon dioxide: An empirical model." Ph.D. (Geography) Columbia University

**Undergraduate Research Students Supervised**

2003: Abigail Swann "Analysis of night-time NEE at the Euroflux Network" Senior Honors  
 Thesis, Dept of Earth and Planetary Science, UC Berkeley  
 1996: Nina Molumby. "A quest for the missing sink: A theoretical calculation of the absorption of  
 anthropogenic carbon dioxide". Senior Integrative Exercise, Carleton College  
 1988: Juliana Minkowitz. "Application of a one-dimensional numerical model of cloud and  
 precipitative processes". B.A. Barnard College. Winner of "The 1988 Howard T. Orville  
 Scholarship in Meteorology" of the American Meteorological Society.

**High School Research Students Supervised**

1991: Shuming Liu. "Interannual and longer-term changes in photosynthetic activity of Africa".  
 Stuyvesant High School, New York. Entry in 1991 Westinghouse Science Competition  
 1990: Ann Cho. "Greenhouse warming and heat mortality". Stuyvesant High School, New York.  
 Entry in 1990 Westinghouse Science Competition

### **UNIVERSITY, COLLEGE AND DEPARTMENTAL COMMITTEES**

- 2004-2005: Member, EPS Long-Range Planning Committee
- 2003-2005: Member, ESPM Endowed Chairs and Awards Committee
- 2003-2004: Chair: Committee for the Environment
- 2003: Member, CNR New Directions Committee
- 2003-2004: Member, Townes Fellowship Committee, Space Sciences Laboratory
- 2002-2003: Lead, Coordinating Committee, Environment Initiative Proposal:  
"Future of the Planet"
- 2001-2002: Faculty Search Committee, Department of Geography
- 2000-2003: Member, Executive Committee, College of Natural Resources (CNR)
- 1999-2003: Member, Integrative Physical Sciences Building (Campbell Hall)  
Study Committee
- 1999-2002: University Committee on Fellowships and Graduate Scholarship
- 1998-2003: Member, Advisory Committee, Space Sciences Laboratory